

IN THE CLAIMS:

Amend claims 1-5 and add new claims 6-20 as shown in the following listing of claims, which replaces all previous versions and listings of claims.

1. (currently amended) An ink jet recording apparatus comprising:

an ink jet head comprised of a piezoelectric ceramic plate having at least a pair of partition walls with deformable side walls spaced apart at a preselected distance to form a channel for receiving ink and communicating with a nozzle opening, a pair of electrodes each connected to respective ones of the side walls of the partition walls, which has a wiring substrate mounted with a driving circuit including a driving IC and in which integrated circuit for applying a driving voltage is applied to the pair of electrodes to deform the side walls of the partition walls of the piezoelectric ceramic plate an electrode provided on a side wall of a groove formed in a piezoelectric ceramic plate to vary a the volume in of the channel groove to thereby discharge eject ink filled therein from a the nozzle opening, and data storage means for storing two or more different types of driving information data of the ink jet head including driving condition data; and

an external circuit connected to the driving circuit of the ink jet head and having setting means for reading at least the driving condition data stored in the data storage means and automatically setting driving conditions of the ink jet head in accordance with the driving condition data. ~~circuit, wherein~~

~~the ink jet head is provided with data storage means for storing driving information data at least including driving condition data of the ink jet head; and~~

~~the external circuit is provided with setting means for reading at least the driving condition data included in the driving information data and automatically setting driving conditions of the ink jet head.~~

2. (currently amended) An ink jet recording apparatus according to ~~claim 1, wherein claim 1; wherein the~~ driving condition data of the ink jet head includes voltage rank data for setting a magnitude of the driving voltage applied by the driving integrated circuit to a predetermined value.

3. (currently amended) An ink jet recording apparatus according to ~~claim 1, wherein claim 1; wherein the~~ driving information data includes dot count data obtained by counting the number of times of ink discharge of the ink jet head.

4. (currently amended) An ink jet recording apparatus according to ~~claim 3, further claim 3; further~~ comprising data writing means for storing the number of times of ink discharge of the ink jet head as the dot count data in the data storage means.

5. (currently amended) An ink jet recording apparatus according to ~~claim 4, further claim 4; further~~ comprising data managing means for managing the dot count data stored in the data storage means; and notifying means for notifying that the ink jet head is close to the end of its lifetime, wherein the data managing means makes controlling the notifying means to operate at a time point when the dot count data attains a predetermined value or more higher.

6. (new) An ink jet recording apparatus comprising: an ink jet head comprised of a substrate having an ink chamber for storing ink and at least a pair of partition walls with deformable side walls spaced apart at a preselected distance to form a channel for receiving ink from the ink chamber, a pair of electrodes each connected to respective ones of the side walls of the partition walls, a driving circuit for applying a driving voltage to the pair of electrodes to deform the side walls of the partition walls of the piezoelectric ceramic plate to vary the volume of the channel to thereby eject ink from the channel, and data storage means for storing

a plurality of different types of driving information data including driving condition data of the ink jet head; and an external circuit connected to the driving circuit of the ink jet head and having setting means for reading at least the driving condition data stored in the data storage means and automatically setting driving conditions of the ink jet head in accordance with the driving condition data.

7. (new) An ink jet recording apparatus according to claim 6; wherein the driving information data further includes dot count data obtained by counting the number of times of ink discharge of the ink jet head.

8. (new) An ink jet recording apparatus according to claim 7; further comprising data writing means for storing the number of times of ink discharge of the ink jet head as the dot count data in the data storage means.

9. (new) An ink jet recording apparatus according to claim 8; further comprising data managing means for managing the dot count data stored in the data storage means; and notifying means for notifying that the ink jet head is close to the end of its lifetime, the data managing means controlling the notifying means to operate at a time point when the dot count data attains a predetermined value or higher.

10. (new) An ink jet recording apparatus according to claim 9; wherein the driving information data further includes dot count data obtained by counting the number of times of ink discharge of the ink jet head.

11. (new) An ink jet recording apparatus according to claim 10; wherein the driving condition data of the ink jet head includes voltage rank data for setting a magnitude of the driving voltage applied by the driving circuit to a predetermined value.

12. (new) An ink jet recording apparatus according to claim 6; wherein the driving condition data of the ink jet head includes voltage rank data for setting a magnitude of the driving voltage applied by the driving circuit to a predetermined value.

13. (new) An ink jet recording apparatus comprising: an ink jet head comprised of a substrate having an ink chamber for storing ink and a plurality of partition walls having deformable side walls spaced apart at a preselected distance to form a plurality of channels for receiving ink from the ink chamber, a plurality of electrodes each connected to respective ones of the side walls, a driving circuit for applying a driving voltage to the electrodes to deform the side walls to vary the volume of the channels to thereby eject ink from the channels, and data storage means for storing a

plurality of different types of driving information data including driving condition data of the ink jet head; and an external circuit connected to the driving circuit of the ink jet head and having setting means for reading at least the driving condition data stored in the data storage means and automatically setting driving conditions of the ink jet head in accordance with the driving condition data.

14. (new) An ink jet recording apparatus according to claim 13; wherein the driving information data further includes dot count data obtained by counting the number of times of ink discharge of the ink jet head.

15. (new) An ink jet recording apparatus according to claim 14; further comprising data writing means for storing the number of times of ink discharge of the ink jet head as the dot count data in the data storage means.

16. (new) An ink jet recording apparatus according to claim 15; further comprising data managing means for managing the dot count data stored in the data storage means; and notifying means for notifying that the ink jet head is close to the end of its lifetime, the data managing means controlling the notifying means to operate at a time point when the dot count data attains a predetermined value or higher.

17. (new) An ink jet recording apparatus according to claim 16; wherein the driving information data further includes dot count data obtained by counting the number of times of ink discharge of the ink jet head.

18. (new) An ink jet recording apparatus according to claim 17; wherein the driving condition data of the ink jet head includes voltage rank data for setting a magnitude of the driving voltage applied by the driving circuit to a predetermined value.

19. (new) An ink jet recording apparatus according to claim 13; wherein the driving condition data of the ink jet head includes voltage rank data for setting a magnitude of the driving voltage applied by the driving circuit to a predetermined value.

20. (new) An ink jet recording apparatus according to claim 13; further comprising a nozzle plate connected to the substrate and having a plurality of nozzle openings each disposed in communication with respective ones of the channels so that when the electrodes are driven by a voltage signal ink is ejected from the channels through the nozzle openings.

IN THE ABSTRACT:

Delete the abstract now of record and insert
therefor the new abstract submitted herewith on a separate
sheet.